Proceedings of 2015 International Conference on Industrial Engineering and Systems Management, IEEE IESM 2015, 2016, pages 947-954

Creating a safe working environment via analyzing the ergonomic parameters of workplaces on an assembly conveyor

Makarova I., Khabibullin R., Belyaev E., Mavrin V., Verkin E.
Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

© 2015 International Institute for Innovation, Industrial Engineering and Entrepreneurship - I4e2.Globalization places increasing requirements to quality and competitiveness of products in the automotive industry. This is forcing manufacturers to look for reserves to increase the safety and efficiency of production processes. In the past two decades many companies have used such advanced methods as simulation to identify the causes of inefficiency of technological processes, among them, analyzing of the process ergonomic parameters. Special software packages are based on applying the accurate three-dimensional models of the person for build virtual production. This approach is more economical than experimenting in real systems and significantly accelerates the analysis of ergonomic parameters because it can be done in parallel with technological preparation of a production but not after it has started. The paper demonstrates the capability of simulation models in optimizing and boosting the efficiency of a technological process, diminishing the work load on the staff in assembly area and risk of performance loops caused by jobrelated accidents and musculoskeletal disorders.

http://dx.doi.org/10.1109/IESM.2015.7380269

Keywords

automobile industry manufacture, ergonomic, safety, simulation modeling, technological process